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AUTHOR Rosaen, Cheryl L.; And Others
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ABSTRACT

As part of a larger examination of student perspectives on science, social studies and communication arts, this case study provides accounts of two fifth graders' participation in a writers' workshop. Teacher-researchers involved in the overall study included two fifth grade teachers, one third grade teacher, two university professors, and three doctoral students in teacher education. Classroom lessons, group work, and writing conferences conducted with 47 fifth graders were documented with field notes, audiotapes, and videotapes during the year. Seventeen target students were chosen for intensive study, and two students, one male and one female, were selected from this group as the focus of this study. Analysis focused on ways in which these students integrated meaning constructed in the writers' workshop with meaning constructed in science and social studies learning. For both students, becoming aware of and learning new language to express and examine their ideas seemed to be key factors in the ways they participated in the learning community and the meanings they constructed through their participation. (Contains 48 references.) (MM)

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INTEGRATION FROM THE STUDENT PERSPECTIVE: CONSTRUCTING MEANING IN A WRITERS' WORKSHOP

Cheryl L. Rosaen, Barbara Lindquist,
Kathleen Peasley, and
Constanza Hazelwood
with
LISS Colleagues

Corinna Hasbach, Kathleen J. Roth,
Elaine Hoekwater, and Carol Ligett

Center for the Learning and Teaching of Elementary Subjects

Institute for
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College of Education
Michigan State University

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Center for the Learning and Teaching of Elementary Subjects

The **Center for the Learning and Teaching of Elementary Subjects** was awarded to Michigan State University in 1987 after a nationwide competition. Funded by the Office of Educational Research and Improvement, U.S. Department of Education, the Elementary Subjects Center is a major project housed in the Institute for Research on Teaching (IRT). The program focuses on conceptual understanding, higher order thinking, and problem solving in elementary school teaching of mathematics, science, social studies, literature, and the arts. Center researchers are identifying exemplary curriculum, instruction, and evaluation practices in the teaching of these school subjects; studying these practices to build new hypotheses about how the effectiveness of elementary schools can be improved; testing these hypotheses through school-based research; and making specific recommendations for the improvement of school policies, instructional materials, assessment procedures, and teaching practices. Research questions include, What content should be taught when teaching these subjects for understanding and use of knowledge? How do teachers concentrate their teaching to use their limited resources best? and In what ways is good teaching subject matter-specific?

The work is designed to unfold in three phases, beginning with literature review and interview studies designed to elicit and synthesize the points of view of various stakeholders (representatives of the underlying academic disciplines, intellectual leaders and organizations concerned with curriculum and instruction in school subjects, classroom teachers, state- and district-level policymakers) concerning ideal curriculum, instruction, and evaluation practices in these five content areas at the elementary level. Phase II involves interview and observation methods designed to describe current practice, and in particular, best practice as observed in the classrooms of teachers believed to be outstanding. Phase II also involves analysis of curricula (both widely used curriculum series and distinctive curricula developed with special emphasis on conceptual understanding and higher order applications), as another approach to gathering information about current practices. In Phase III, models of ideal practice will be developed, based on what has been learned and synthesized from the first two phases, and will be tested through classroom intervention studies.

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Co-directors:	Jere E. Brophy and Penelope L. Peterson
Senior Researchers:	Patricia Cianciolo, Sandra Hollingsworth, Wanda May, Richard Prawat, Ralph Putnam, Taffy Raphael, Cheryl Rosaen, Kathleen Roth, Pamela Schram, Suzanne Wilson
Editor:	Sandra Gross
Editorial Assistant:	Tom Bowden

Abstract

This paper discusses integration from two fifth-grade students' perspectives in the context of learning to write. The authors provide accounts of Brenda's and Billy's development of "knowledge and ways of knowing," and "ways of being in a learning community" in the context of a writers' workshop. Ways in which each student integrated meaning constructed in a writers' workshop and with meaning constructed in science and social studies learning to become qualitatively different or "transformed" participants in a community of writers are described. Each student's case of integration is a unique and distinctive story of personal sense-making and personal knowledge use. These cases are also representative of the kinds of integration the authors saw occur during one school year with 47 fifth-grade students. Qualities of the learning setting developed in all three subject matter contexts that supported student-constructed integration are discussed.

Prologue to a Set of Papers on Integration Including

Integration from the Student Perspective:
Constructing Meaning in a Writers' Workshop (ESC Series No. 62)
Cheryl L. Rosaen, Barbara Lindquist, Kathleen Peasley, Constanza Hazelwood

Integration from the Student Perspective:
Constructing Meaning in Science (ESC Series No. 63)
Kathleen J. Roth, Kathleen Peasley, Constanza Hazelwood

Holistic Literacy:
Voices Integrating Classroom Texts in Social Studies (ESC Series No. 64)
Corinna Hasbach, Constanza Hazelwood,
Elaine Hoekwater, Kathleen J. Roth, Michael Michell

The Literacy in Science and Social Studies Project.

Each paper in this set explores integration from the perspective of fifth-grade students who were the focus of our collaborative teaching and research across the school year, 1990-91. We are a group of school-based and university-based educators who have been working together for the past three years in a project called the Literacy in Science and Social Studies Project (LISSS). In this project we have been exploring ways to teach for understanding in science, social studies, and communication arts, with an emphasis on studying ways in which discourse and writing can be used effectively to promote understanding.

Taking on Teacher-researcher Roles.

During 1990-91, each of the group participants (two fifth-grade teachers, one third-grade teacher, two university professors, three doctoral students in teacher education) took on what we called a teacher-researcher role. Through collaborative planning, teaching, and researching we tried out new ways of changing and studying our practice and new ways of studying students' thinking and learning as it develops in a classroom setting. Cheryl Rosaen and Barb Lindquist co-planned and co-taught writers' workshop with the two fifth-grade classes, with Constanza Hazelwood and Kathleen Peasley providing data collection assistance. Kathleen Roth and Kathleen Peasley co-planned for science across the fall; Roth taught science to Lindquist's fifth graders while Peasley taught science for Elaine Hoekwater's fifth-grade students. Hazelwood,

Lindquist, Hoekwater, Hasbach, and Rosaen assisted in data collection while Roth and Peasley taught science. Social studies for both fifth-grade classes was co-planned and co-taught by Hoekwater and Corinna Hasbach, with Hazelwood again providing research assistance.

Although we often worked in subject-specific subgroups (science, social studies, writers' workshop) for planning and teaching purposes, the centerpiece of the LISSS project was a weekly two-hour study group involving all project participants. During the first year of the project, this study group focused on study and discussion of what it means to teach for understanding, how discourse and writing can be used as tools for understanding, and what sort of learning community needed to be established for *all* students to develop personally meaningful understandings of social studies, science, and communication arts. When we took on the new teacher-researcher dimension to our work in our second year together, study group became a place to share in our study of our students' thinking and learning and to study our teaching practice. We reflected together on the changes that each of us was implementing in the classroom. We worked collaboratively to develop research questions and data collection techniques for the cases of teaching and learning we were developing. We talked extensively about the 47 fifth graders and their thinking and learning.

Our Initial Views About Integration.

We began our work together with an interest in better understanding the role that writing could play in science and social studies teaching and learning. We believed that new approaches to writing and classroom discourse could support students in developing more meaningful understandings of science and social studies concepts. Our view of "understanding" initially emphasized two aspects of integration. First, we wanted students to develop connected networks of concepts in each subject area, not just to memorize lists of words and dates. Secondly, we wanted students to integrate their study of science, writing, and social studies with their personal lives and experiences and ideas. We did not address a third kind of integration--cross-disciplinary integration. Although our study group discussions cut across the three subject matter areas of interest, each teacher-researcher team was exploring teaching for understanding within one

particular subject matter area. Integrated teaching of science, social studies, and writers' workshop was not a prominent aspect of our plan, although Rosaen and Lindquist did have some goals for getting students to write about subject matter topics in writers' workshop. We viewed teaching for understanding *within* each subject matter area to be a challenging enough task for our first year of joint planning, teaching, and inquiry. Thus, we made few explicit attempts to integrate our teaching of social studies, science, and writing instruction around a common theme or set of concepts. Students explored desert plant and animal adaptations at the same time that they conducted a study of the history of the school and wrote pieces about themselves. They studied concepts of food, energy, cells, adaptations, and evidence in science while they explored the concepts of racism, empathy, discrimination, freedom, democracy, power, exploitation, and perspective in social studies. Descriptive writing techniques, authorship, revision, collaboration, and point of view were emphasized in writers' workshop. While many of these topics and concepts could have been integrated in our teaching, we did not set that as a prominent goal. An exception was an authors' design unit toward the end of the year in writers' workshop in which students were encouraged to write about science and social studies content.

Learning About Integration From the Students.

Our students taught us about integrated *learning* even though integrated *teaching* was not purposefully planned. Each of us conducted in-depth interviews with a subset of the fifth-graders at the end of the school year. Our interviews were clearly defined in our minds as science interviews, social studies interviews, and writing interviews. While each interview was planned to explore ways in which students integrated knowledge within each subject area and ways they integrated their school learning with their personal lives and experiences, questions designed to explore students' ways of integrating across these three subjects were few (because we did not intend in our teaching for such integration to occur). However, students' interview responses raised important cross-disciplinary integration issues. In the science interviews, for example, students used ideas from social studies ("perspective") and writers' workshop ("collaboration") in

meaningful and interesting ways. Such data prompted us to reexamine integration from the students' perspectives both *within* and *across* subject matter areas.

This reexamination of the data from cross-disciplinary as well as disciplinary perspectives enabled us to develop a new framework for thinking about integrated learning and integrated teaching. As an analysis strategy, each subject matter team separately examined the data (individual and small group student interviews across the year, field notes and transcripts of lessons, student writing in the three subjects across the year, videotapes of small group work in each subject area). Each team looked for evidence of students' cross-disciplinary integration while focusing on studying integrated learning within a particular subject area. The communication arts team (Rosaen, Lindquist, Peasley, and Hazelwood) asked: How did students integrate science and social studies knowledge, skills, and ways of knowing with their development as writers? The social studies team (Hasbach, Hazelwood, Hoekwater, Roth, and Michael Michell, a doctoral student in teacher education, who participated in analysis and writing) asked, How did students integrate their developing knowledge about history and social studies with their personal life experiences? The science team of Roth, Peasley, and Hazelwood asked, How did students integrate science concepts and ways of knowing taught across the year? How did students integrate ideas from social studies and writers' workshop with their science learning? Each of the three subject matter teams then wrote a paper based on their analysis.

Looking across the three papers: Differences. Each subject-matter focused paper describes cases of integrated learning, highlighting those aspects of integration that seemed most salient across the interviewed students. In social studies, the most striking kind of integration constructed by students was integration of social studies concepts with their personal lives, beliefs, experiences, and feelings. Integration of ideas about discrimination and racism, for example, were powerfully connected to the personal lives of students who had experienced significant discrimination. The students in the science paper revealed to us fascinating cross-disciplinary insights as well as meaningful integration of concepts taught across the year in science. Ideas from

writing and social studies like "perspective" and "collaboration" appeared to be very useful to students in describing their understanding of scientific inquiry. In the writing case, links across subject areas were also striking, with students using ideas from social studies and science ("sexism," "discrimination," and "empathy") in their development as writers.

Looking across the papers: A new framework for thinking about integrated learning. As we looked across the three analyses, we found common characteristics in our teaching of the three subjects that helped us explain what might be enabling students to make such powerful connections both within and across subject matter areas. These commonalities suggest that our teaching across these subjects was integrated in many ways that we had not recognized while we were engaged in the teaching. Our teaching in the three subject areas shared common characteristics:

1. **Features of the learning community.** In our study group sessions, we jointly conceptualized the kind of learning community we were trying to create in each of our classrooms. We used Hermine Marshall's (1990) distinction between the metaphor of a classroom as a workplace compared to a classroom as a learning place and developed a list of related qualities that are important to us in creating learning communities that contrast with more traditional, work-oriented classrooms. In work-centered classrooms (like ours in the past) the emphasis is on each individual completing his or her work, often merely for the sake of "getting the job done" rather than for the purpose of learning. In a learning-oriented classroom, students still complete work, but there is an emphasis on how and why the work is being done. Thinking, questioning, discussing, making mistakes, trying new ideas, and so forth are valued and rewarded as much as completing a finished, correct product. We tried to create environments in which everyone's knowledge and experience was valued and respected and in which students as well as teachers felt ownership and engagement in the content of study. We designed strategies to engage students in meaningful learning tasks while avoiding teaching strategies and evaluation patterns that encouraged students to complete work at the expense of making sense and raising questions. Table 1 summarizes

some of the features of the learning community that we strove to create in teaching science, social studies, and writing.

2. **Epistemological orientations of the teachers--knowledge as tentative and socially constructed.** The features of our learning communities described in Table 1 are built upon some basic assumptions we share about the subject matters we are teaching. For example, an important aspect of our learning communities was collaboration. Collaboration was important to us not only because it is an effective way to engage students actively in their learning; collaboration is also a basic aspect of knowledge construction in science, social studies and history, and writing that we wanted to communicate. Rather than presenting science or history knowledge as something that was personal and private--the property of a single individual--knowledge in our classroom learning communities was created by students (and adults) working in collaboration with one another. This emphasis on collective cognition, rather than on the individual, is consistent with a social constructivist epistemology of science or history in which the knowledge rests not external to the individual, but rather is located within the discourse community, "within the corps of human beings with a common intellectual commitment "(King & Brownell, 1966, p. 68). We encouraged students to view their texts (including textbooks, other print sources, videotapes, visitors, statements by other students and teachers, experiments, etc.) as authored, as tentative statements of knowledge, as open to question and change. We wanted to communicate that scientific and historical knowledge are human creations just as are fictional stories created by writers. We wanted students to understand the rules of evidence that are used to create historical and scientific explanations and to judge the merits of a literary work, while also understanding ways in which the biases and perspectives of the writer can influence the way knowledge is presented and which knowledge gets presented in official school texts. In all subject areas, students were supported in being critical readers of multiple texts.

Table 1

A Learning Setting vs. a Work Setting:
Creating a Conceptual Change Learning Community

A CONCEPTUAL CHANGE SCIENCE LEARNING COMMUNITY	A WORK-ORIENTED CLASSROOM SETTING
*Sense making and learning as the goal	*Getting the work done as the goal; getting facts learned or activities and projects completed
*Personal, emotional involvement in meaningful and authentic problem situations	*Depersonalized, unemotional relationship with work, getting the products made
*Ownership and commitment by each person; responsibility shared	*Teacher as executive in charge of everything
*Active inquiry and question asking are valued and encouraged	*Getting the right answer is valued and encouraged
*Expertise comes from everyone, is shared; learning is a collaborative process	*Expertise comes from the teacher and learning is a private activity
*Everyone's ideas are valued and respected as useful in the learning process; diversity is celebrated in a caring environment	*Workers need to keep quiet and busy; diversity is a problem for quality control and efficiency
*Good learners listen to each other	*Good workers listen to the teacher
*Public sharing and revising (working out) of ideas	*Only complete, polished final products are shared
*Evidence, not authority, is used to construct new knowledge and judge merits of ideas	*Knowledge comes wrapped in neat packages that are delivered from teacher or text to student; all packages are to be appreciated and not questioned
*Each learner starts and finishes in a unique place; learning as a process of conceptual change	*All workers create the same product or else are failures; learning as a "you have it or you don't" phenomena

NOTE: The metaphor of a learning vs. a work setting for thinking about classrooms was adapted from Hermine H. Marshall (1990) in "Beyond the Workplace Metaphor: The Classroom as a Learning Setting" in Theory Into Practice, 29, 94-101.

3. **Curricular centrality of students' personal lives and experiences.** In all three subject areas, we centered curricular planning around students' thinking and experiences. We thought about the content from the students' perspectives in planning and altered our teaching as we learned more about the students' ideas and experiences. We tried not to shy away from personal connections that might be emotionally laden; in writing and in social studies, students were encouraged to think about, draw from, and share experiences that were important to them--even though at times these experiences were hurtful ones. In science, students were encouraged to have personal reactions and feelings about the content of study. They were able to share their feelings of alienation from science without penalty; they were respected for having a wide variety of personal beliefs about the use of animals in scientific research, and they were introduced to scientists as human beings who had families and personal lives as well as passions for learning about the world around them.

These three commonalities across our classrooms gave us a new framework for thinking about integration from the students' perspectives. This framework for thinking about integrated *learning* is challenging our thinking about integrated *teaching*. We began this study assuming that we were not engaged in integrated teaching. But our students demonstrated some exciting ways in which they were making significant connections among ideas that we never expected. Thus the students challenged us to rethink our definition of integrated teaching. What is integrated teaching? What does integrated curriculum look like? Our entering view, consistent with the literature on integration, was that integrated teaching is built around a conceptually or topically integrated curriculum. Theme teaching, for example, is integrated teaching, because the curriculum is built around a topic or concept that cuts across disciplinary areas. When teachers get together to plan such theme teaching, their discussions focus on conceptual links across the subject areas - about curriculum content. Now we are thinking that such theme teaching may or may not result in integrated student learning. The students have challenged our belief that integrated curriculum is

necessary in enabling integrated learning. Instead, we now see the three commonalities described above as critical factors in creating integrated teaching that supports integrated learning.

Continuing Our Explorations of Integrated Teaching and Integrated Learning

We have learned many lessons about integrated learning from our students. In this paper set, we describe cases of integrated learning and our emerging understandings of the features of the instructional context that supported such learning. The papers focus purposefully on cases of meaningful and successful integration. We chose such a focus because we were surprised and excited to discover that so many students--including many students labelled "at risk"--were able to make such powerful connections. Given the wealth of studies that demonstrate the difficulties students have in transferring knowledge, we think these students' success stories need to be told.

To help us examine and question our emerging framework for thinking about integrated teaching, we want to continue our analyses of students who were less obviously successful in integrating knowledge within and across subjects. This is difficult to study using our existing data because our interviews were not designed to tap cross-disciplinary integration, and each interviewer made clear to the student that the interview was about science or social studies or writing. Students who appeared to have knowledge compartmentalized into disciplines may actually have made some rich connections among the subjects that were not elicited by very many of our questions.

In our future research and teaching collaboration, we want to continue to examine integrated teaching and learning. During the 1992-93 school year, we plan to continue our integrated teaching in terms of our new framework for thinking about integrated teaching: the learning community, epistemological orientations, and curricular centrality of students' personal lives and experiences. In addition, we will explore the role of curricular content integration in supporting integrated learning. Building a curriculum around the theme of "1492--The World 500 Years Ago and Today," we will incorporate as many subject areas as possible in our integrated teaching. Will this curricular integration around a topical theme enable students to make even more

powerful connections than those made by the students reported in these papers? We are not convinced that such an integrated curriculum will appear integrated from the student perspective. We know we will learn a great deal about aspects of integrated curriculum that are meaningful only to the teachers versus aspects that are meaningful to students. We hope that such an inquiry into integrated curricular content will enable us to understand whether our future efforts should focus on teaching for understanding within each subject matter area or should be focused explicitly on integrated curriculum as well, or whether we should aim to strike a balance between integrated and subject specific teaching.

As you read one or more the papers in this set, you may find it helpful to refer back to our three commonalities that cut across all three papers. We also hope you will join us in considering the questions we are raising about integrated teaching and learning: What features of instruction are critical in supporting integrated student learning? We invite your reactions and comments and hope our work stimulates a lively dialogue about these important issues.

INTEGRATION FROM THE STUDENT PERSPECTIVE: CONSTRUCTING MEANING IN A WRITERS' WORKSHOP[1]

Cheryl L. Rosaen, Barbara Lindquist, Kathleen Peasley, and Constanza Hazelwood

With LISSS Colleagues:
Corinna Hasbach, Kathleen J. Roth, Elaine Hoekwater, and Carol Ligett[2]

Since the Fall of 1989 we have worked with a group of educators (university teacher educators and researchers, graduate assistants, teachers) in a Professional Development School in a collaborative effort called the Literacy in Science and Social Studies Project (LISSS). The focus of our work has been to explore ways to engage students genuinely in their learning and to create classrooms that are learning settings for *all* students. We share a particular interest in exploring ways to teach for understanding in science and social studies, with an emphasis on studying ways in which discourse and writing can be used effectively to promote understanding. As our collaboration evolved, so did our vision of what learning settings could look like, our vision of what it means to learn subject matter, and our vision of what we as educators of diverse backgrounds can do together to improve our classroom teaching.

During the 1991-2 school year, several members of our group took on a teacher-researcher role to learn new ways to study students' thinking in a classroom setting and to study our own teaching practice. We studied 47 fifth-grade students' learning as different members of our group taught in three subject matter contexts--

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[1]This is one of a set of three papers on curriculum integration originally presented at the annual meeting of the American Educational Research Association, San Francisco, April 1991.

[2]Cheryl L. Rosaen, assistant professor of teacher education at Michigan State University, is a senior researcher with the Center for the Learning and Teaching of Elementary Subjects. Barbara Lindquist is a fifth-grade teacher at an MSU Professional Development School. Kathleen J. Roth is a senior researcher, and Kathleen Peasley, Constanza Hazelwood, and Corinna Hasbach are research assistants with the Center. Roth is an associate professor of teacher education at MSU; Peasley, Hazelwood and Hasbach are doctoral candidates in teacher education at MSU. Elaine Hoekwater teaches fifth grade and Carol Ligett teaches third grade at an MSU Professional Development School. The authors work together in the Literacy in Science and Social Studies (LISSS) Project at the school. We want to acknowledge the joint contributions of all project participants in developing the ideas about learning community, teaching for understanding, and learning as transformation that are discussed in this paper.

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science, social studies, writing--across one school year, tracing students' learning within and across subject matter areas. Initially we planned on discussing our ongoing research during our weekly LISSS study group and assumed that sharing what we were learning would help each of us enrich the research we were doing within each subject matter area. That sharing and learning did occur, but even more exciting things happened as well.

As our group explored and discussed particular ways in which the fifth-grade children constructed knowledge and ways in which they understood particular concepts, we noticed that the lines between and among learning in our three subject matter areas began to blur; that is, many of the *conceptual understandings, ways of knowing*, and *ways of being in a learning community* that we saw particular students develop in one context played important roles in the learning that took place in other subject matter contexts as well. These areas of growth thus became more than developing *understandings* that students used in multiple contexts; they also included *transformations* in values, attitudes and interests (Jackson, 1986) that influenced further learning within and across subject matter areas. There were some areas where we had intentionally tried to integrate our teaching across subject matter areas (e.g., use of writing in science and social studies, use of the concept of empathy to understand author's purpose in writers' workshop and discrimination in social studies), but we saw signs of other kinds of integration that we had not intentionally supported in our teaching.

These initial insights led us to investigate integration from the students' perspectives, to learn more about ways in which particular understandings, approaches to learning, attitudes, values, interests, and so on developed in one context might influence a students' learning in another context. By focusing on the meaning students constructed over time, we gained insights into ways in which

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students constructed their own integration across the subject matter areas, and identified qualities of the learning setting that seemed to support the integration.

This paper reports on integration from two students' perspectives in the context of learning to write. We provide accounts of Brenda's and Billy's development of *knowledge and ways of knowing*, and *ways of being in a learning community*, in the context of a writers' workshop. We detail ways in which these students integrated meaning constructed in a writers' workshop with meaning constructed in science and social studies learning, to become qualitatively different or "transformed" participants in our community of writers. Each student's case of integration is a unique and distinctive story of personal sense-making and personal knowledge use; these cases are also representative of the kinds of integration we saw occur with students generally. Qualities of the learning setting developed in all three subject matter contexts that supported student-constructed integration are discussed.

Developing New Visions of Teaching and Learning: What Is Integration?

Since the first year of our collaborative work, our group has spent a great deal of time talking about subject matter teaching and learning in science, social studies and writing, and the notion that learners construct new knowledge in relation to the prior knowledge and experiences they bring to the learning context. As we delved more deeply into studying students' understanding and thinking, we sought ways to broaden our notion of learning to include more than understanding subject matter concepts that are "out there" to be received, and more than individual cognitive processes that take place inside a student's head. We also sought ways to conceptualize, organize and plan our instruction in science, social studies, and writing so that what each of us taught in our respective subject matter areas would complement and enhance learning in other subject matter areas. This led us to

explore new ways to think about meaningful learning *within and across* subject matter areas.

Integration as Combining Into an Integral Whole

> **Integration**: 1. the act or instance of combining into an integral whole; 2. behavior, as in an individual, that is in harmony with the environment; 3. Psychology: the organization of the constituent elements of the personality into a coordinated harmonious whole. (*The Random House Dictionary of the English Language*, Unabridged edition, 1971)

Two lines of research, cognitive science research and research on literacy acquisition and development, informed our thinking about the learning process and the role integration might play in it. For example, cognitive research on subject matter learning and learning strategies (e.g., Posner, 1989; Pressley & Levin, 1983), and on literacy learning (e.g., Pearson & Johnson, 1978; Rumelhart, 1980; Smith, 1982a, 1982b) has informed educators' understanding of learners and the learning process. Through transactions with the environment, learners restructure their knowledge structures and construct new knowledge (Carey, 1988; Vosniadou & Brewer, 1987). From this view, children learn to use writing, written text, and discourse as learning tools, not as ends in themselves. Literacy includes reasoning, problem solving, and critical and creative thinking as ways to generate new knowledge and new skills (Brown, 1991; Michaels & O'Connor, 1990). Research on literacy acquisition and development also describes ways in which children's knowledge construction through transactions with text and through discourse are shaped by the prior knowledge and experiences they bring to literacy events (e.g., Halliday, 1978; Rosenblatt, 1938, & 1978; Teale & Sulzby, 1986; Wells, 1981, & 1986). Thus, the learner plays a significant role by bringing together different aspects that enter into the learning process, by constructing meaning, and combining different parts into a "unified whole."

Drawing on these lines of research, many thoughtful educators have argued for an integrated approach to fostering and supporting students' literacy

development and learning in other subject matter areas. This approach seemed worth pursuing in our teaching, since it acknowledges the learner as playing a central role in constructing meaning, and therefore playing a central role in the extent to which experiences in one learning context (e.g., writing) are connected to experiences in another (e.g., science or social studies). For example, when the four language modes (listening, reading, writing, and speaking) are used as the means to support children's inquiry into particular topics across the disciplines, they become more than ends in and of themselves. As children use the language modes in an integrated fashion in real language use, their language capabilities also progress (e.g., Atwell, 1989, 1990; Fulwiler & Young, 1982; Hill, 1986; Hynds & Rubin, 1990; Jensen, 1989). This approach to literacy instruction is sometimes called a "transactional approach" (Weaver, 1988), or a "whole-language approach" (Goodman, 1986). Also drawing on these lines of research, some educators recommend using broad themes or issues as a means to organize an integrated approach to literacy instruction, thereby opening up the subject matter content to include exploration of concepts and issues in other disciplines (e.g., Moss, 1984, 1990; Pappas, Kiefer, & Levstik, 1990; Rudman, 1984; Walmsley & Walp, 1990). Thus, combining teaching and learning into a "unified whole" could involve creating opportunities for students to develop knowledge and skills in one area as they use them to pursue learning in another. Because different members of our group were responsible for teaching in different subject matter areas during different time blocks during the school day, we explored ways to collaborate as teachers to support students' learning and create a "unified whole" across the school day instead of attempting to create a series of integrated thematic units.

Integrated Teaching and Integrated Learning

As we began the year teaching and researching in our respective subject matter areas, we often noted in our study group meetings that although our subject

matter goals were distinct, there were similarities in several qualities of the learning environment we were trying to develop and characteristics in learners we were trying to nurture. We explored ways to capture simultaneously the social, interactive, cognitive, and affective dimensions of teaching and learning in our classrooms, and to think about ways in which teaching and learning in each subject matter area may be similar or different. These explorations led us to develop two metaphors that described the kind of learning environment we were trying to create, and helped us define the nature of knowledge, ways of knowing, and qualities of learners that are integral aspects of developing significant understandings in science, social studies, and writing: a learning place metaphor, and a quilting metaphor.[3] When we began to ask questions about integrated learning, we discovered a third metaphor that helped us describe more explicitly the richness of the learning we saw going on: a metaphor of transformation.

Peter Elbow (1973) described writing as being like "cooking" in that new ideas and perceptions result from the writing process. We recount a brief history of our own talking, thinking, and writing because our own learning process contributed to our current understandings of integration from the students' perspective. In discussing the value of working or "cooking" with metaphors, Elbow elaborated:

> When you make a metaphor, you call something by a wrong name. If you make a comparison, an analogy, or an example, you are thinking of something in terms of something else. There is always a contradiction. You are not just calling a house a house, but rather a playground, a jungle, a curse, a wound, a paradise. Each throws into relief aspects of the house you might otherwise miss. *You are seeing one thought or perception through the lens of another.* Here again is the essence of cooking, *new ideas and perceptions result. Connections are loosened so that something may develop or grow in whatever its potential directions are.* (Emphasis added, pp. 53-4)

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[3]These metaphors were developed collaboratively by all LISSS Project members.

Our exploration of the three metaphors helped us discover aspects of the teaching and learning process that we might not have otherwise perceived. These metaphors enriched our teaching and our analysis and interpretation of the data.

A Learning Place Metaphor to Highlight the Social Context

Hermine Marshall's (1990) distinction between viewing the classroom as a *workplace* compared to a *learning place* was helpful to us in defining the *emphasis* we value in our teaching of science, social studies and writing. We used this distinction as a starting point to develop our own ideas regarding subject matter knowledge, skills, dispositions, teacher and student roles, and what would represent learning. For example, in traditional classrooms, getting work done is emphasized over what is actually learned from getting the work done. In such a work-oriented setting, subject matter is neatly packaged and defined and ready to be "delivered" to students. In a learning setting, knowledge is socially constructed and developed by people. This means that evidence, not authority, is used to construct new knowledge and judge the merits of ideas. This places each person in the position of sharing expertise rather than limiting expertise to knowledge found in texts or in the teacher's head. Moreover, thinking, questioning, discussing, learning from mistakes, trying new ideas, and so on are valued and rewarded as much as completing a finished product. Students not only focus on learning particular subject matter concepts but also on knowing how and why certain concepts and ideas are connected and useful. Understanding what it means to be a scientist, a historian, or a writer is part of the subject matter "content" in a learning place. Additionally, taking risks, challenging ideas, listening, collaborating, appreciating diversity, as well as responding to and respecting others' ideas are important social behaviors in the learning place, since they are necessary aspects of constructing knowledge. Our image of the learner in the learning place is someone who feels a sense of ownership

and commitment to his or her own learning, and has the disposition to inquire and ask why.

A Quilting Metaphor to Highlight the Social Construction of Knowledge

The learning place metaphor helped us generate a shared vision of the qualities of the classrooms in which learning would take place, and student participation we wanted to nurture. We also wanted to capture the nature of subject matter learning more particularly--our goals for teaching for understanding as they were played out in our teaching. After much discussion of alternative images, we came upon quilting as a metaphor to represent both the process and product involved in teaching and learning for understanding. The multiple layers in a quilt represent the complexity of teaching for understanding. The quilting process itself represents the notion that the doing is just as important as finishing the quilt. Moreover, the uniqueness of each quilt emphasizes how we were each heading toward certain subject matter goals, but also created unique "products" or supported students in developing unique understandings in each curriculum unit; each quilter (students and teachers) experienced unique experiences and constructed unique understandings, skills, and dispositions. The stitches in the quilt represent the qualities of the learning place we discussed above. Without the backing and the many tiny, consistent stitches, the quilt would fall apart. It would not only lose its function, it would lose much of its beauty, for the tiny stitches that go through all three layers of the quilt form the beautiful patterns; they are not random. We think of the backing of the quilt as the learning community in our classrooms and the stitches as the qualities of the learning setting that are created over time as students and teachers engage in learning activities together. People visiting our classrooms need to look for "tiny stitches" to appreciate the qualities of our learning environment: the response students receive on their written work; the encouragement to ask questions and to make sense instead of just finishing work or

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memorizing facts; the care put into teacher questions and activities to communicate sense-making and meaning; the ways in which student ideas are listened to and brought into the fabric of the classroom; the encouragement and support students are given to forge new connections and patterns.

This image of teaching and learning is an alternative view of the typical notion of teacher as someone who imparts knowledge or skills to students, and it rests on a *fundamentally different relationship* among teacher and students. Instead of imparting knowledge, teaching for understanding is geared toward empowering and enabling learners to construct their own meaning so that the learning is relevant and useful, and so that learners have the desire to and know how to go on learning.

The Metaphor of Transformation to Highlight the Learner

The learning place and quilting metaphors helped us look at and understand the social nature of learning in our classrooms and the social construction of knowledge, however, these metaphors were not as powerful in helping us think about how *individuals* construct meaning in the social context. As we studied our students' individual learning across the year, they began to teach us about integration in ways we had not thought of. We searched for an image of learning that would help us capture the kind of learning we discovered.

Jackson's (1986) notion of "transformative teaching" derives from the metaphor of the learner undergoing a metamorphosis--a transformation, a profound and enduring change, often of dramatic proportion. For this kind of growth to take place, Jackson asserted that students and teachers engage in both a psychological and epistemological relationship, and that the relationship brings about modifications in attitudes, values, and interests as they relate to subject matter. This image of students undergoing a "transformation" captured many of the kinds of changes we had been talking about in our study group. For example, we were seeing students interact with each other differently: talking with each other rather than through the teacher as

mediator; challenging each others' thinking; showing genuine interest in each other's writing; using evidence to explain and defend their ideas; asking to spend more time writing; bringing writing in from home and talking on the phone at night about pieces they were writing. We were also seeing them use concepts, ideas, values, and interests they had learned or developed in one subject matter context in other contexts. They were not only learning within each subject matter area, they were becoming *qualitatively different people*, which also shaped their further learning. As we investigated more purposefully what may have brought about such "transformations," we came to discover three kinds of connections that seemed to influence these changes.

Making connections within subject matter areas. Within each subject matter area, we were working toward helping students develop particular knowledge, skills and dispositions, as well as helping them see their learning as connected and useful. In the area of writing, for example, we wanted students to understand what it means to be a writer. This entails developing particular knowledge (e.g., characteristics of quality literature; language for discussing response to literature; knowledge of descriptive writing techniques and particular forms of writing), and skills (e.g., ability to use descriptive writing techniques; ability to write in a variety of forms), and ways of knowing (e.g., using literature as a source of writing ideas and techniques; using a journal as a place to generate and store writing ideas). It also entails developing the disposition to write, to use their knowledge of good writing as they write, and to participate in a writing community so others can learn from them. If students were to make rich connections among these different areas--if they were to be "transformed"--they would behave differently as writers and as learners. They would, for example, choose to write, seek writing ideas from each other and literature, choose to help others with their writing and so on. In writers' workshop, these areas were represented by two curriculum strands in our unit development and

our teaching: learning to write, and learning to understand and appreciate literature.

Making connections as a learner. In all three subject matter contexts, we wanted students to learn how to learn (e.g., using writing to think, asking questions, questioning the authority for knowledge), and intended that their growing awareness and use of such strategies would become apparent across their school day. In addition, we wanted students to learn to behave socially in a community of learners (e.g., taking risks, challenging ideas, responding to others, respecting others' ideas, appreciating diversity, collaborating). We tried to foster transformations in their level of ownership of ideas, commitment to their own learning and the learning of others, and their tendency to reflect and think. We wanted them begin to develop qualities that are required of people who are in a learning place (e.g., Can I have more time to work on a piece I started at home?) and shed qualities of task oriented workplace participants (e.g., How long does my story have to be and when is it due?). In writers' workshop, this area was represented in our unit planning and teaching by a third curriculum strand: supporting students in becoming full participants in the learning community.

Making connections across subject matter areas. From studying our students' learning and participation in the learning community, we began to understand a third kind of transformation. Learners who experience transformations in one subject matter area will come to other learning contexts as different people (although this does not occur in a linear fashion). As our students changed as writers (e.g., experimenting with new forms of writing, learning to make their own decisions as writers, learning to talk about writing among each other), they also changed as learners of science and social studies. For example, as students learned new concepts and skills in social studies (e.g., concepts such as racism, sexism, discrimination, justice, equality; skills such as critical reading of text), and in science

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(e.g., the nature of scientific inquiry, use of argument and evidence, the language of science), new understandings, attitudes and values that stemmed from their learning in science and social studies began to emerge in our discussions of literature and student writing.

More To Learn

We know a great deal about children's development as writers (e.g., Bissex & Bullock, 1987; Calkins, 1983; Newkirk, 1989), as readers (e.g., Clay, 1979; Langer, 1990; Lehr, 1991), and the interaction among the language modes in children's literacy development (e.g., Hansen, 1987; Langer, 1986; Langer & Applebee, 1987; Loban, 1976). Likewise, ways in which students' understandings have developed through use of various language modes have been well researched (e.g., Barnes, 1976; Blake, 1990; Hynds & Rubin, 1990). However, research is needed on how integrated instruction that is intended to support students' literacy development in several areas as well as subject matter learning is actually interpreted and integrated by students into a "unified whole." How effective is this approach to organizing and implementing literacy instruction in furthering students' language capabilities and in supporting subject matter learning? From the students' perspectives, what meaning do they construct, in what ways is the meaning integrated, and to what extent and how are learners transformed?

Studying Integration From the Students' Perspective

Research Questions

In the context of teaching writing, Rosaen and Lindquist co-planned and co-taught a writers' workshop across one school year while engaging in qualitative research on their own teaching and the students' learning. With research assistance from Hazelwood (also conducting research on science and social studies teaching with the same groups of students) and Peasley (also studying her own science teaching with one group of fifth graders), we studied the fifth-grade students'

developing knowledge, skills and disposition to write and the nature of their participation in the writing process over time. The purpose of the study was to examine the following questions: (a) *Knowledge, Skills, and Ways of Knowing:* How did the students participate in literacy activities and the writing process? What qualitative changes were evident in written products over the year? What knowledge, skills, and dispositions were developed? (b) *Ways of Being in a Learning Community:* How did students interpret and participate in the social context in which the literacy learning took place? How did their interpretation and participation shape their writing knowledge and skills and their disposition to write? (c) *Ways of Integrating*: In what ways did students construct meaning across subject matter areas? To what extent did they integrate meaning constructed through experiences in one subject matter context with meaning constructed in another subject matter context? From the students' perspectives, to what extent did understandings, approaches to learning, and social norms in the learning community in each subject matter area become integrated, or form a "unified whole"? In what ways were learners "transformed," and how did transformations in one area influence learning in another?

Methodology

The students. One fifth-grade class included 22 students and the other 25. The 47 fifth graders are predominantly Caucasian, but included one African-American student, three Hispanic students, and two students of Native-American descent. These students live in a community that is mainly rural and blue collar and located adjacent to a mid-size city and a large university. The newer neighborhoods being built have attracted more professional and paraprofessional families. Of the five elementary schools in the district, this school is considered to have the highest number of "at-risk" students. Many students live in a neighboring trailer park and are living on low family incomes.

Target students. Seventeen target students were chosen near the end of the year for more intensive study (six females and three males from one class; three females and five males from the other). The students in the target student group represent a range of abilities (including students receiving speech therapy and Chapter I reading assistance, as well as students of higher academic ability). Sixteen students are Caucasian and one is Hispanic. The two students' cases reported in this paper are part of the target group, a male and female from the same fifth grade class.

Data sources. Classroom lessons, group work, and writing conferences conducted with the 47 fifth graders were documented with field notes, audiotapes and videotapes across the year. All whole-class lessons were audiotaped from September through February. Whole group lessons were videotaped March through May. During individual work time, one audio recorder was placed at different four-desk clusters to capture interaction that took place within clusters. Rosaen carried an audio recorder with her whenever she worked individually with students. Large-group and small-group sharing sessions were either audiotaped or videotaped. All 47 students' written work (e.g., journals, writing projects, written evaluations of their own writing progress) was collected.

The 17 target students were interviewed formally at the end of the school year. Twelve students were interviewed individually (and videotaped). Two small-group interviews (five students from one class and five from the other) were also videotaped. Students were interviewed informally as part of ongoing instruction throughout the year to learn more about how they made sense of the literacy learning experiences, their own perceptions of the writing process, and how they perceived these experiences to be related (or not related) to learning experiences in science and social studies. These informal interviews were audiotaped. Rosaen and Lindquist audiorecorded their planning sessions across the year, and saved all

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written documents associated with planning (e.g., planning notes, schedules, calendars, resource lists).

Data analysis. Data analysis was aimed at understanding four main aspects of teaching and learning: (a) the intended curriculum throughout the year; (b) the enacted curriculum, including the subject matter content and the development of the social context for learning over time; (c) individual meaning constructed by students within writers' workshop; and (d) individual meaning constructed by students across subject matter areas.

Using planning records, audiotapes and fieldnotes, Rosaen and Lindquist constructed a chronological summary of their intended curriculum across the year, dividing the year into seven instructional units and summarizing daily lessons within each unit. Three curriculum strands guided our planning and teaching across the year: (a) creating and supporting the learning community, (b) developing writing knowledge and skills, and (c) developing literary understanding and appreciation. For each unit, we identified which curriculum strand(s) was more prominent ("foreground") and which strand(s) was less prominent ("background"). Table 2 provides an overview of the yearlong curriculum and the emphasis of the three curriculum strands in each unit. This curriculum overview was used as a tool in tracing students' development over time, as a way to compare the intended and experienced curriculum, and as a way to locate in real time what was occurring in the learning community when insights about a particular learner's growth were investigated. Using field notes, Hazelwood constructed detailed notes regarding the development of the learning community across the year, paying attention to the nature of language used by teachers and students, the overall atmosphere in the classroom, and the nature and level of participation.

Table 2
Unit Overview and Curriculum Strands

PHASE 1: LAYING GROUNDWORK	**Strand 1: The Learning Community**	**Strand 2: The Writing Process**	**Strand 3: Literary Understanding and Appreciation**
Unit 1: All About Me Sept. 4-24	Background: relationship building: trust, respect; modeling how students could help each other with writing and how to collaborate; learning is celebrated	**Foreground:** overview of the writing process (one complete cycle) revising techniques: leads, word choice, use of details, focus parents' night as occasion to publish	
Unit 2: Animalia Sept. 25-Oct. 8	**Foreground:** collaboration through cooperative groups; public sharing and revision of ideas; ownership, commitment, shared responsibility, learning is celebrated	Background: writing process embedded in way the task was structured: brainstorm ideas, use of details, sense-making	Background: Identify why *Animalia* is appealing and interesting; use of quality literature as model
Unit 3: Descriptive Writing Oct. 9-Nov. 11	Background: use of evidence and developing shared expertise about what makes good description; public sharing and revision of ideas; learning is celebrated; ownership, commitment, shared responsibility	**Foreground:** practicing the writer's craft: revision techniques to create better description through use of 5 senses and exaggeration; revise before you write	Background: use of literature as models; revision of published literature

Table 2 (cont.)

PHASE 2: INITIATION	Strand 1: The Learning Community	Strand 2: The Writing Process	Strand 3: Literary Understanding and Appreciation
Unit 4: Establishing a Writers' Workshop Nov. 8-Dec. 19	**Foreground:** how to work together as a community of writers; use patterns established to support and develop capacity to help each other (see Strand 2); personally meaningful learning as a goal	**Foreground:** responding to each other's writing: receiving a piece, author's day, getting topic ideas; visit from author; Christmas walk-through	Background: literature share day as routine; share literature on winter topics as source of ideas and models
Unit 5: Poetry in Writers' Workshop Jan 7 - Feb. 7	Background: use author's day and literature share day as pattern to encourage celebration and sharing; "I wish" group poem; personally meaningful learning as a goal	Background: use writing process to create poetry or other forms of writing; students have choice of topic and form	**Foreground:** learn about aspects of poetry: simile, personification, line breaks, color poems, "I wish" poems, poetic license use published pieces as models

Table 2 (cont.)

PHASE 3: DELVING MORE DEEPLY INTO AUTHORSHIP	Strand 1: The Learning Community	Strand 2: The Writing Process	Strand 3: Literary Understanding and Appreciation
Unit 6: Author's Design Feb. 13-March 21	Background: inquiry, asking questions, public sharing of ideas, use of evidence and shared expertise, valuing and respecting others' ideas, personally meaningful learning as a goal	Background: use author's design as a framework for own writing	**Foreground:** understanding relationship among aspects of author's design: author's topic and purpose, topic knowledge, choice of form, audience, audience response
Transition Period March 25-April 18	Background: continue writers' workshop as schedule permits (testing, vacation interruptions) sharing of student writing and published literature	**Foreground:** select piece to put in middle school folder and write a paragraph about self	Background: create "wish list" of books to order for library (also served as information on student interests for next unit)
Unit 7: Author's Exploration April 22-May 16	Background: collaborate with others to explore different book sets and develop focus question	Background: study authors' biographies and book sets to get ideas for topics and forms; study own "All About Me" piece from viewpoint of memoir; develop focus question for finding out more about fiction, biography, or subject matter	**Foreground:** use biographical materials and book sets to explore: Where do authors get ideas? What do authors do to improve their writing? Explore book sets: fiction, biography, subject matter sets

Using field notes, audiotapes, videotapes, and student interview transcripts, dimensions of learning community participation for each target student were developed and coded. These dimensions include: ownership of and commitment to writing tasks; using a variety of resources in writing projects; asking questions to clarify thinking; participating in a variety of activities to stimulate thinking; engaging in purposeful editing; engaging in writing as an ongoing process;

increasing control over multiple aspects of the writing process. Cross-case analysis (with LISSS project researchers working in the context of teaching science and social studies) included investigating the extent to which these behaviors were evident in the context of science and social studies learning, and how students made sense of learning experiences across contexts. We also looked for and kept track of instances where particular subject matter concepts or "ways of knowing" in a discipline were evident in students' participation in writers' workshop (e.g., concepts such as empathy, discrimination, sexism, agism; the nature of inquiry for writers, historians, scientists).

To learn about students' growth in writing knowledge, writing skills and dispositions to write, we analyzed their written work, audiotapes of writing conferences, and interviews using the following categories: themes explored in writing; writing style and voice; forms of writing experimented with and used; use of language structures; mechanics; awareness of and attention to audience. Cross-case analysis included investigating and keeping track of instances where particular science or social studies concepts or "ways of knowing" were evident in students' approaches to writing, to participating in the writing community, or in the actual content of their writing.

Two Stories of Student-Constructed Integration

We turn now to recounting two stories of student-constructed integration that are drawn from our data on two case study students. These stories are each framed around an incident in the classroom that prompted us to pursue more closely what influenced the student to participate in that way, and to try to trace the students' transformations over time. Brenda and Billy are students who were in Hoekwater's

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fifth-grade class.[4] Lindquist and Rosaen co-taught writers' workshop in both classes while Hoekwater and Hasbach taught social studies to both classes.

Brenda: Making Women and Girls Visible

We begin with a short vignette describing an incident that took place during "authors' day," our Wednesday routine for sharing of drafts and finished pieces. This incident took place just as our poetry unit (the fifth unit we had taught) came to a close. During this unit students experimented with a variety of poetic forms and devices. During the fall months, we had taught a series of introductory units that were more teacher-directed as a way to introduce various writing techniques to students and support their participation in a learning community characterized by lots of social interaction and collaboration. As part of the new writers' workshop format, we instituted the routine of having an authors' day on Wednesdays during the month of November.

> It is February 6 and as they do each Wednesday, students in this fifth-grade classroom are sharing their writing on authors' day. It is Tim's turn to share a story he has been working on for some time--a story about some murders that took place at the school. Since he has such a long story and there are several others who also are waiting to share, Rosaen suggests that he select one part of the story and ask his audience to respond for a particular purpose. After reading a portion of the story and discussing the similes he used in his piece, Tim continues reading quite a long segment, and then asks for questions or comments.
>
> Brenda: How come there was only boys in it? There wasn't one girl. (many overlapping comments)
>
> Casey: We're in communication arts, not social studies!
>
> Rosaen: Tim, can I ask you a question?
>
> Tim: Yeah
>
> Rosaen: What do you make of Brenda's comment as far as thinking about yourself as an author and finding out how people in the world are responding to your writing? What do you make of her comment?

[4]All student names are pseudonyms. Actual names of teachers are used.

Tim: Well, as Johnny said, it is my story and I can put what I want in it and I think maybe I should put some girls in it.

(There is more discussion of how to use this as feedback for the author.)

Rosaen: Casey, one other comment that I wanted to make note of is that you said, I heard you say, "This is communication arts, not social studies."...Can you say more about why you made that comment? What reminded you of that?

Arthur: Because in social studies we were talking about sexism...

Rusty: And discrimination all across the fall...

Rosaen: So can we bring in ideas from social studies in here? Was that helpful to your discussion?

Casey: She never would have said that, probably, if we hadn't been studying that in social studies.

Rosaen: In other words we bring all our experiences to reading things, we don't just have experiences in one spot and then forget about them and act like we're different people. We're the same people when we go into social studies and English. So she brought that...

Casey: I know, what I'm saying is she would never probably said it if she wouldn't (inaudible) in social studies.

Rosaen Are you saying that she had a new idea in social studies, Casey, is that what you are saying, and if she hadn't gotten that idea in social studies she would never have brought it up here?

Casey: Yeah

Lindquist: Is that, do you see a problem with that?

Casey: No

Brenda: I think he was saying that us girls shouldn't get new ideas.

Rosaen: Is that what you meant Casey?

Casey: No.

On the day we had this discussion, we were very excited to see Brenda bring up an idea from social studies in our sharing time during writers' workshop. After all, it was this kind of connection we were hoping students would begin to make and the kind of initiative we hoped to see them take--that issues they were exploring in social studies would have relevance and meaning in other contexts in their lives. We were also excited to see Brenda speak up about a topic that was personal to her in a

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learning community that had only recently begun to take on a collaborative and cooperative atmosphere. Up until a few weeks prior to this discussion, this class had been our toughest challenge to engage in genuine debate about issues that they cared about. We also saw some further commitment from Brenda on the issue of women's importance during a March 19 discussion of a poem entitled "Girls Can, Too!" by Lee Bennett Hopkins (1972) in which he described a girl outsmarting a boy and getting all his baseball cards. During this discussion, as we probed for what Hopkins's purpose for writing was and pursued the issue of whether girls are better than boys, Brenda offered examples of times when girls might be better in sports, and sometimes smarter also.

But how do we know Casey was correct in his hunch that Brenda would not have brought up this issue if they hadn't been talking about sexism in social studies? How do we know if taking the risk to challenge Timmy surrounding this topic is a real "transformation" in Brenda--a change that will last and endure--and not just a coincidence, or something that was on her mind for the moment, or not just a brief and fleeting interest that lasted only a month? To answer these questions we needed to stand back from this incident and take a closer look at who Brenda is, what kinds of learning we saw in her, and where we found support for the idea that her behavior on February 6 reflected a transformation. We examined whether this was an example of how she had personally integrated her learning from social studies into her participation in the writing community.

Brenda's Starting Points as a Learner in Science, Social Studies and Writing

Brenda's progress as a learner came up often in our study group discussions during the early fall months, mostly because of contrasts we saw in her class participation in science and writing. She is a soft-spoken, cooperative student who began the year completing assignments willingly. However, in science, she spoke more frequently, and played a leadership role in her small group work. She was

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more engaged in the questions being pursued, which included taking her science journal home at night to discuss ideas with her mother. In social studies, she also seemed more easily engaged in the topics under discussion. For example, she included more elaborated details and expressions of emotions in her journal writing. She also showed a concern about the way her group in social studies functioned in a note to Ms. Hoekwater:

> Mrs. Hoekwater,
> Sorry to waste a piece of jernal paper but this is very important. I know I chose to have Roxanne join our group but she doesn't listen to us! She only puts her own ideas down and then we say no Roxanne we changed our answer to something but she says "NO!" and keeps hers!!!
> Sinceraly,
> Brenda
> p.s. she's never serious. She's always joking around. (undated entry)[5]

This is not the first time the issue of collaboration arose in her social studies journal. Prior to writing her note to her teacher, she used the word "collaboration" several times to discuss the way the settlers approached working with the Native Americans:

> When the settlers got to north america and met the indians, they collaborated on how to help crops grow, by putting 3 fish in a hole with the seeds as fertilizer. Another example the indians and settlers brainstormed (collaborated) on how to use nets to catch fish. Another example that the indians and settlers collaborated about was how to live on nuts and berries if were lost or food was dying off.
> They also collaborated on how to build housed and what kind of housed to build. They desided to use big leaves for waterproof roofes and the best logs for building the body of the house. (November 14 entry)

In writers' workshop, Brenda did contribute occasionally to whole-class discussions, and followed through quietly on small-group assignments. Rather than participate fully with all small-group members, she tended to pair off with either Dorie, a Vietnamese student whose proficiency in spoken English was minimal, or Clare. She fit the image of a typical "work setting" student who did her assigned

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[5] Students' own spellings, punctuation and usage are printed as found in their written work. Cross-outs and ideas edited out by students on drafts are not included.

work, and seemed to work more in parallel with her peers rather than collaboratively.

The first assigned writing of the year required students to write an "All About Me" piece. Like the rest of the students in the class, Brenda's first draft tended to be a list of facts about herself and her family. When Rosaen taught mini-lessons on writing a series of leads intended to help the students develop a more purposeful focus for their piece, Brenda chose from her list of possible leads a sentence about her hobbies, and wrote her second draft with that focus. She also followed directions and wrote her draft on every other line so she could add more details. For example, she added the words printed in italics (below) to her second draft after mini-lessons on use of detail and descriptive words:

> Do you have *any* hobbies like me? Some of mine are reading mystery's *(my best one was the hidden staircase)*, riding my bike *around the block* and shopping *at the mall*. I like playing with animals patichelly my cat and dog the best because there just like a friend. *Even though I like my 2 best friends [ ] and [ ] a lot more* I don't like playing with *my brothers* turtles because they are shy. But animals like my *calico* cat or my dog *[ ]* can catch a ball or play with string...[6]

Yet her final copy ended up being a less detailed version:

> Do you have hobbies like me? Some of my hobbies are playing with our animals. We have 1 dog named [ ]. 1 cat named [ ], 6 turtles (no names) and fish. I like my cat and dog the best because it's hard to play with fish and turtles are boaring. But dogs can run and catch a ball when cats can play with string and do tricks.

Her final version did not seem to show much commitment to improved writing or ownership of the piece, but rather like a school assignment she finished by a due date.

Brenda's Transformations as a Writer

Brenda grew as a writer across the year in many ways. One area we examined was the nature of her participation in the writing community, and how she made

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[6]Names are left out to protect the students' identities.

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connections as a learner. As described above, Brenda began the year doing her work in parallel with other students, but began to see the value of sharing with others. She spent a great deal of time working with Dorie creating a *Yesterday* book that they wrote, illustrated and published jointly. She also saw other reasons for collaborating, such as to make the writing process more enjoyable:

> I: Which [piece] did you enjoy writing the most? When one was the most fun to write?
>
> Brenda: I think my *Yesterday* book was.
>
> I: Your *Yesterday* book? And what made that so much fun?
>
> Brenda: It was fun to draw the pictures and to write about the girls that are my age, you know, and it was just a little fun piece to do.... Dorie thought it would be fun too, so I let her in on it and she got to draw some of the pictures and it was really fun trying to make all the background in time to pick out her clothes and stuff. (Individual interview 5/31/91)

Collaborating was also a way for Brenda to work on improving the quality of her writing:

> Well it has something to do with collaborating, because they would explain to you what they felt or what they think you could do to improve your work or what you might be able to take out that would improve your work." (Group interview 5/29).
>
> I like knowing what people around me think....I want other people to want to read my books.... (Individual interview 5/31/91)

In fact, learning how to improve the quality of her writing was an important theme in Brenda's writing growth, one that she was aware of when she she said that she thought she grew as a writer "quite a bit" and offered this explanation:

> I've started realizing how much description counts in a book and how much explaining counts in a book. 'Cause I could say Michael ran out to the door and checked for John. John, John, come here. John ran downstairs. I saw a dog get beat up! Where? Let's go find him, I'll get my sisters. I mean that wouldn't be very fun. (Individual interview 5/31/91)

When asked what she would do to make one of her pieces even better, she explained:

> Well, I would definitely, I would go back and add more description. Because I love books that have a lot of description, but they don't go on and on forever with the description. Like about a pine tree, you don't really need to, I mean you can describe the smell or something, you

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> don't have to say that it has these little prickly things on the end. I mean you're gonna know. (Individual interview 5/31/91)

In addition to an awareness of the importance of description, Brenda had tried out and come to value some of the techniques for improving her writing we had discussed, and used them to help her write her mystery story:

> And sometimes I just like going out, we have a beach, and I like sitting on the beach and looking into this because it makes it easier. Especially if I'm gonna make the outing at a lake, I think it would be interesting looking at our lake and adding some details.... Because I can't really think of a lake and add details without looking at it. (Writing conference 5/14/91)

Another technique Brenda tried was using her journal as seeds for larger pieces, and deciding later if she wanted to pursue an idea:

> Brenda: Well, I write a lot of things in here, like I would like to learn how to. I really didn't think of that as something I would want to publish.
>
> I.: So do you use it to kind of jot down things to try and and then you decide if they're going to be a piece?
>
> Brenda: When I'm not sure if I want them to be a piece or not...in my journal I'll just look it over and I'll go, "Well, I don't think I really want to do this, why spend my time on it?" (Individual interview 5/31/91)

Brenda also found value in using literature as a source of ideas, and as a source of good writing:

> Because I'll read a book and I'll think that they, I thought that the writer did a really nice job and I'll write down some of the things that I liked about it, sometimes, and then I'll look back in it and I'll write questions about it, about how I could do that. And then I'll go back when I'm looking for ideas and I'll look what I had written down earlier and sometimes I'll use that information and sometimes I'll go, "Why did I write that? I don't want to use that information in this book."...I usually don't throw it away because I'll want to keep it in case I have another book that I might want to use that sort of information for. (Individual interview 5/31/91)

During the composing process, Brenda also sought ideas and techniques from books such as when she was creating her mystery story, the piece that she considered the one that she learned the most from because, "Well, I have more to think about, 'cause it's such a, it's a chapter book and I have to think harder about what I want to do with

it" (Individual Interview 5/31/91). When she was having trouble proceeding, she turned to literature for help:

> I read a bunch of the beginnings of the [mystery] books because I couldn't think of a beginning but I sort of had an idea of what I wanted to write ... every night I go in my room and I read more of my mystery books, 'cause I have a bunch of mystery books, and I, I try and get ideas from my book.... I write my ideas down in that [journal] every day, every night... (Individual interview 5/31/91)

Brenda also came to see that writing a good piece takes time, and that the quality of one's writing is more important than the quantity:

> 'Cause you might have only one or two really good stories. And that's better than having ten or twelve really bad stories.... No, I mean they wouldn't know they were bad but they don't add as much description 'cause they don't take as much time with them. (Group interview 5/29/91)

When asked, in a group interview, if students considered themselves to be authors, Brenda was among three (out of five) who were quite definite in saying they were:

> Brenda: I just think that anyone can be an author if they write something. I don't think it has to be published...or that it has to be out on the market just to make you an author.
>
> Iris: I think that I'm sort of an author now that I have heard what they said 'cause sometimes I write a lot of poetry and um I think I'm an author because I have been writing a lot for writing workshop so I sort of think I am and sort of think I'm not.
>
> Brenda: Why do you think you're not? I don't understand how you don't think you are.
>
> Iris: Well, sometimes I can't think of anything to write.
>
> Brenda: I don't think that authors always have something in mind that they want to write. (Group interview 5/29/91)

Brenda's self-assurance that she is a writer because she writes and her willingness to challenge her peer in a group setting show a transformation in her commitment to writing compared to her approach to writing in the fall. She also participated differently--more actively and with more conviction--in the writing community.

These examples show clearly that there were several areas of growth or transformation for Brenda as a writer: her participation in the writing community,

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her knowledge and use of writing techniques, her commitment to improving the quality of her writing and taking on further challenges. We wondered whether some of these changes might have been influenced by her learning in science and social studies. As we investigated this question, it became apparent that Brenda's growing understanding of and commitment to the visibility of women--in history, in science, and in writing--seemed to influence her participation in the writing community. She constructed her own integration--a personal understanding and connection with this issue--across the three subject matter areas to become a more committed writer and participant in the writing community.

Women and Girls Become Visible

To figure out what may have influenced Brenda to challenge Tim regarding why he did not include any girls in his story, we considered Casey's hunch that she probably wouldn't have brought the issue up if their class "had not studied it [sexism] in social studies." The issue of the visibility of women is one that was treated explicitly in both science and social studies class, so we explored connections Brenda made within science and social studies regarding this issue, and then considered how she might have made connections across the three subject matter areas.

Women as scientists. In September Brenda's science class, taught by Peasley, studied the nature of scientific inquiry and focused on what it means to be a scientist. For example, Peasley asked students to draw a picture of a scientist at work and describe what the scientist is doing. Brenda drew a picture of a male scientist wearing a lab coat standing next to a lab table with a cartoon bubble that says, "I wounder." Her explanation confirms that in her mind the scientist is male: "This scientist is woundering if he added the lava to the dry iced water if the water would turn red and orange from the lava or stay the same" (9/10/90 journal entry). Three days later, after discussing and writing about different aspects of scientists' work, students were asked to discuss and write about a picture of Dorothy Hodgkin at work.

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and answer two questions: (1) What do you think this person is doing? and (2) Do you think this person is a scientist? Why or why not? Brenda's response, unlike many of her classmates, was that the woman is a scientist:

> (1) I saw her 4 arm's and thought the artist drew 4 arm's on her because scientist are so busy it's like they almost need 4 arms so they work in groups.
>
> I think she is searching for clues in a little book to find out why. She has 4 arms with a magnafying glass to look for closer clues. I also think she is writing down her thoughts.
>
> (2) I think she is because she's is investigating about something like a scientist.

Although Brenda did not address explicitly her change in thinking, she opened up her thinking to include women as scientists in this entry. The following day, she pursued this connection when asked to list ways she is and is not like a scientist:

> I am like a scientist because I
> --study things
> --read
> --write journals
> --do research about what I want to know about
> --share my discovery's with others
> --Go to meetings (at school)
> --talk (to teacher & friends about important things, even problems I might have)
> --invent things
>
> I am not like a scientist because I...
> 1) don't travel to share my ideas
> 2) talk to public about my idea's

Just as she was being supported to think of herself as an author in writers' workshop, Brenda was being encouraged to think about ways in which her own behaviors are like that of men and women scientists. Women and girls were becoming visible to her in ways she had not previously thought of. She also saw Peasley, her female science teacher, as a scientist and seemed to feel that she was entering a scientific community, as reflected in this journal entry: "I liked when you said you thought of the same things I did because its neat to have a real scientists think what I think."

As a learner of science, Brenda continued to show the qualities of being curious and asking questions, even several months later:

> I would like to know more about the similarities and differences between human and plant food because I can't think of that many.... I liked the part when we got to handle real plants. It was fun. I like experimenting with real things--I don't like just picturing it in my mind. I like doing the real thing. (Science interview 2/4/91)

Women and girls as makers of history. While Brenda was experiencing what it meant to be an author and a scientist, she also was experiencing what it meant to be a historian in social studies class, taught by Hoekwater and Hasbach. During the early fall months, the students learned to use primary sources to investigate and write an historical account of their own school. The role of women in history was treated explicitly as a topic in December when the class began to study social issues and the meaning of central concepts related to them such as: empathy, discrimination, prejudice, rights, duties, justice, equality, racism, sexism, agism, ableism, democracy, exploitation, social conflict. In January, this study was followed by a series of discussions designed to bring the invisible--women, Africans, Native Americans, Hispanics--to the foreground.

When we studied Brenda's writing and participation in social studies class, two things stood out: Brenda's "way of knowing" in social studies, and concepts that were salient for her. An important theme in social studies class was the idea that history is socially constructed, not "out there" to be received. Brenda seemed to embrace this idea and adopted it as a "way of knowing" for herself. This perspective was revealed when she was interviewed about social studies at the end of the year:

> At school:
> They tell me about their book and I tell them about my book you know what happened or we let each other read each other's journals every day, you know, before the teacher reads them ... so you don't have to read every single book, you know, you could just learn about it from--journals or from them instead of having to read the book.
>
> When I would read by myself without having anyone else to read with me it got sort of boring and because I wouldn't have anyone to tell about what I was reading about ...

I like doing things .... and hearing what other people have to say and comparing things that I have to say and what other people have to say.

It's neat working with other kinds of people and we all talk to each other and they say, "Well, how would you like it if it happened to you." I mean I don't know anyone that thought it would be fun to be made fun of because of the color of skin or because of what they were.

At home:
Every night, every night I talk with my mom and my dad and my brother and my uncle ... we'll get a turn to say what we did during the day. My mom and dad usually ask me about social studies and because they think that it's neat what we're studying about ... so I think they like it because they were never taught those things before.

Outside school with friends:
Yeah, I talk, me and Clare talk about it a lot with Laurie because we were hoping she could be in the same class ... we'll go out in someone's back yard during the day, you know, and we'll ask each other questions about what happened in certain subjects.

Brenda appreciated and valued the role of social interaction, and the role that sharing ideas played in her learning. These comments also show that she was disposed to spend time talking about social studies issues and concepts, that she was engaged in her learning.

Another quality of Brenda's approach to learning that became apparent in social studies was her use of empathy to understand others' perspectives. Brenda defined empathy as, "to try and feel like someone else or to be in their shoes..." She reminded us of the women described in Belenky, Clinchy, Goldberger, and Tarule, (1986) who "integrate their voices," construct their own knowledge, and become an intimate part of the known. For example, when her class learned about the conditions under which enslaved people were transported to the the colonies, after a detailed description of what she had learned about the conditions, she purposely tried to become an intimate part of what she was learning:

And we learned how jammed they were and so me and a friend went outside for recess, and me and some friends went out for recess and we just, we just sat there and it was really hard, I mean we were like, "Oh! I want to move! I want to move!" because we were trying to find out what it was like.... I can't imagine doing that for two months.... Yeah, because we wanted to know what it was really like because we're going, "Well, I

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> don't think it would be too bad. I mean I've been crunched in a car before and it wasn't too bad because it was only a little while." And then we tried it outside for only five minutes and it was like, "I don't want to do this anymore," so we ended up going and playing with something else. But we found out what that was like and that was terrible ...

Brenda extended her empathy to her classmates as well. When asked if there was anyone in the class who she would consider "invisible," she named Roxanne and explained:

> She's visible but invisible. People make fun of her, which means that they see her and they notice her but the don't notice her as being good, just because she's overweight or something they make fun of her. But I think that she can be really nice if you give her a chance.... I notice her as a nice person.... She's invisible because no one notices her because she's nice.

Her understanding of Roxanne's feelings was elaborated to show that she tried to look at the experience from Roxanne's perspective, to think about what it would be like to be Roxanne:

> She seems to be really upset about it, you know, and I would be too if that happened to me ... people make fun of her, they say she stinks or something and she doesn't really, you know, they just say that because they want to be mean ... because she's different and that's just like the black people, they were different.

As the class studied the ways in which particular groups of people have been invisible in history (e.g., women, Africans, Native Americans, Hispanics), Brenda began to see the impact on her own learning on her own understanding of important issues. She also was learning a language and developing her own voice for discussing such issues. When asked why it is important to study social studies, she replied,

> Because we have to learn about what other people in our history have done and what wrongs--to make them right. And I think that it's important that we know what happened because if I didn't know what happened I never would have known about Harriet Tubman, and to me, Harriet Tubman is a very important person.... I never would have known to be against it [slavery] if I hadn't learned about what happened to some of the slaves and stuff.

She also showed conviction about the issue of whether and how women are included in historical accounts, such as in her textbook:

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> I'd be really upset because you know that, they should just include women.... Yeah, because I've been reading some books at home and I, I've noticed that and it's like, well, I never would have noticed that before. I think it's good that I notice it now because it's important.
>
> When they talk about people like Phyllis Wheatly or Harriet Tubman, don't put them on a whole separate page.... I wish they would just include the women ... I mean invisible is like only having a few sentences or not even a paragraph.

Brenda's new understandings of the role of women in history, and ways in which their contributions have been invisible in some historical accounts supported new attitudes and values about what should happen in the future. The new language she was learning--the meanings of concepts such as racism, sexism, discrimination, empathy--and its connection to history gave her words to express her feelings and attitudes, and may also have contributed to giving her her own voice, her *own visibility* in the classroom.

Brenda's visibility in writers' workshop. As women and girls became visible for Brenda in science and social studies class, *she became a more visible girl* in writers' workshop when she challenged Tim to explain why he did not include girls in his story. She *noticed* that girls were invisible, and *voiced* her concern about it. Given our deeper understandings of Brenda as a learner in science and social studies, this writers' workshop incident does seem to be an illustration of Brenda's many transformations coming together into a unified whole, coming together as "integrated voices" (Belenky et al., 1986) to challenge a classmate about an issue that had become a personal part of her knowing. Casey's hunch about Brenda seems to be at least partially true, although more went into her transformation than merely talking about sexism in social studies. She made connections in three areas: within writers' workshop, for herself as a learner, and across subject matter areas.

Billy: It's Not My Problem

Billy is a youngster who experienced many kinds of transformations as a writer and as a learner, and his story illustrates interesting contrasts with Brenda's.

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The vignette we recount below took place in March during the same unit as Brenda's story, the Authors' Design unit. This unit followed our introduction to writers' workshop unit (unit four) and our poetry unit (unit five), and focused on helping students examine the relationship among an author's chosen topic, main idea, the form of writing, the intended audience, and the likely and actual audience reaction. During February we had examined several poems related to the treatment of Native Americans and their loss of the buffalo. We discussed the concept of "empathy" in relation to audience reaction. We had decided to shift from studying poetry written about and by Native Americans to exploring a poem that might get us thinking about empathy in relation to gender issues.

> Lindquist started out the day's mini lesson reviewing the concept of empathy by explaining, "We've been looking at empathy in regards to how the Indians might have felt when they lost the buffalo and when they lost some of the other things that they lost when the white man came to this country. Today we're going to take a look at a different piece of writing and we're gonna see what kind of empathy we get with this particular kind of poem." When Lindquist asked for volunteers, Billy raised his hand and read the poem:

GIRLS CAN, TOO!
Lee Bennett Hopkins

Tony said: "Boys are better!
They can...

whack a ball,
ride a bike with one hand
leap off a wall."

I just listened
and when he was through,
I laughed and said:

"Oh, yeah! Well girls can, too!"

Then I leaped off the wall,
and rode away
With *his* 200 baseball cards
I won that day.

> After asking the students to respond in their journals to two questions: (1) Who do you think wrote this poem? and (2) What is your reaction to it?, the class explored their responses. As Lindquist pursued students' thinking about the

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first question by asking, "Why would a man write a poem like this?" Billy replied, "He's against sexism." A lively debate emerged when Rosaen challenged the students:

Rosaen: Is he right? Is this poet right?

Billy: Yes.

Rosaen: Right about what?

Billy: Boys are better.

??: Both

??: Girls

??: Both the same

Rosaen: Who's better? Boys or girls? What's he trying to say? Both the same? It says, "Girls Can, Too!" Who's right? What's he trying to say? Is he trying to get away with saying girls are better than boys?

??: No.

Rosaen: Timmy

Timmy: Um, he's just making it sound like, um, well he's just saying in the poem that girls are equal and they are.

Rosaen: Equal. How? What's he trying to say?

Timmy: They can do most of the same things boys can.

Rosaen: Exactly? How does the poem end? Who's smarter in this poem?

??: The girl.

Rosaen: What does she do?.... She rode away with his 200 baseball cards. So what did she do? She outsmarted this guy. What's this man trying to say to you about boys and girls?

The discussion continued with several students adding comments such as, "Girls can do the same things as boys and sometimes they can do even better," and "Boys are better at sports and girls are smarter," and "In sports sometimes the Globetrotters are girls.... Some girls might not be smarter than boys." After the debate wound down a bit, students were asked to decide, for themselves, whether they thought the author's message was "important," "not my problem," or "not important," and place their names on a continuum that was posted on the blackboard:

Important-------Not my Problem---------Not Important

Billy placed his name under "not my problem" without hesitation.

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Billy was able to identify quickly and succinctly the author's intention--that he's against sexism--and yet his personal response was that "boys are better" and the issue was not his problem. What sense can we make of this incident? We already know from Brenda's story that the class had been studying the meaning of sexism in social studies and had also considered the invisibility of women in history. Can Billy's actions be interpreted as a transformation in attitude, values, or interest surrounding the issues of sexism or empathy when the bottom line for him is that the author's message is not his problem? This was an intriguing question for us that led us to investigate his learning in science, social studies and writing to see what we could learn about how Billy constructed his own integration.

Billy's Ways of Knowing in Science, Social Studies and Writing

When we took a closer look at Billy's participation and learning across the year in the three subject matter contexts, we were confronted with what seemed to be many inconsistencies, discrepancies and puzzling issues such as the ones illustrated in the incident described above. We often found ourselves asking questions like, "So did he learn something or not?" and "Is this still learning for school, or has he actually personalized this concept for usefulness in his life?" One reason for this uncertainty was that he dutifully completed his assignments and the quality was good, but was he interested, intrigued, or challenged? When we persisted in exploring what his thinking and learning were like, and resisted explaining his learning as lacking passion and commitment and pursued alternative ways of thinking, we began to make some progress in understanding Billy as a learner. We found Belenky et al.'s (1986) ideas about women's ways of knowing to be a helpful starting point in understanding Billy as a learner.[7] By asking ourselves questions

[7] Just as the authors of this volume suggest, the ideas in *Women's Ways of Knowing* do not necessarily apply only to women. Rather, their study focused on learning more about how women come to know, and can certainly shed light on how men may think and learn as well.

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about particular qualities of knowing that cut across the different categories of "knowing" described in the book (silence, received knowledge, subjective knowledge, procedural knowledge and constructed knowledge), we were able to piece together an image of changes over time in Billy's views of subject matter and how he came "to know" subject matter.

Science as fixed and unchangeable knowledge created by experts. Billy began the year as a competent and confident learner in science. He engaged in group discussions with self-assurance and in fact seemed to disregard his group members' contributions when they did not easily come up with "right answers." He seemed to think of scientific knowledge as fixed and unchangeable and to think that learning science meant finding out about scientific knowledge individually and remembering it. As Billy participated in a science learning community that emphasized asking questions, considering alternative explanations and perspectives, and use of evidence to construct understandings, these experiences provided opportunities for him to open up his thinking about the nature of scientific knowledge and how one comes to know science. For instance, instead of reading ahead in the the text to find the "right answer" as was his habit in the early fall months, he became more willing to consider other sources, as shown in the following classroom interchange:

> Peasley: Casey asked, "If I already knew that dirt was food for plants and if someone else [a scientist named Von Helmont, who did an experiment demonstrating that dirt is not food for plants] had already done that experiment, then why did we spend two days talking about whether or not dirst was food for plants? Why didn't I just tell you the answer on Tuesday?" I think that is a good question to ask. A couple of ideas?
>
> Billy: Maybe he's not right and maybe we can think of some other things that he didn't think of. (Class discussion, 11/8/90)

Moreover, instead of restricting his thinking to information in the text, Billy began to use ideas he had learned outside of school--how fertilizer is applied--as evidence to support his position that plants get their food from the ground, as shown in the excerpt below:

Peasley: How do plants get their food?

Casey: They absorb it through their roots.

Peasley: Casey says they absorb it--any other ideas? Do you agree or disagree?

Billy: That's why you put the fertilizer on the ground and not over the plants. Because they get the nutrients and all the stuff from the ground and gather it in their roots. (Class discussion, 11/29/90)

Instead of discounting his group members' contributions, he began to listen, to consider, and to value the contributions of others as sources of information and knowledge such that his classmates became his colleagues in knowledge construction. The excerpt below shows how he not only considered his classmates' ideas, he also incorporated their ideas into his own thinking to change his mind about whether fertilizer is food for plants:

Peasley: So do you think that fertilizer is food for plants?

Billy: I don't know--yeah--and other stuff that help the plant...

Clare: (adds to idea) helps them grow.

Brenda: It gives them extra energy.

Billy: It gives them energy to live and grow.

Brenda: Extra energy.

Billy: It doesn't need it but it helps them grow. (Class discussion, 11/11/90)

At the end of the year Billy reflected back on the unit Peasley taught in the fall and commented, "She [Peasley] would question us and then we would argue about it with each other" (5/29/91).

In his science learning Billy began the year as what Belenky et al. (1986) call a "separate knower," willing to accept others' authority but not his own. As the above examples illustrate, he began to shift his approach to learning science and showed signs of becoming a "connected knower" who was willing to construct his own knowledge and seek evidence from sources other than the text--his own life, his classmates, and himself. This gradual shift was not made easily. In fact, for a time

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period Billy participated less in class, going from daily participation to giving one comment every two to four days. However, the nature of his comments shifted from parroting back what he had read in the book to constucting his own ideas.

History as remembering facts and details. In social studies, Billy also thought "remembering" information played an important role in learning history, and maintained this view throughout the year. When he was interviewed in May, there was still an emphasis in his conversation on what he remembered or recalled and, yet by that time, his explanation for the importance of learning history also included both using knowledge in his own life as well as being able to communicate with others. Parts of Billy's explanation are italicized to show these aspects of his thinking:

> Billy: I know a lot more about colonization. All I knew when I started this year was people from England came over and started colonies. That's all I knew. *Now I know a lot more facts and details.*
>
> Int.: What facts and details? Give examples of things you learned this year.
>
> Billy: I didn't even know there was a Mexican-American war. I learned a lot about the Civil War and a lot about colonization. And I learned about famous people and achievements of them and I learned about some presidents and what things some of them were famous for.
>
> Int.: Do you think that it's important to learn all these things?
>
> Billy: (long pause) It depends kinda. *If you are going to be an historian, yes, it would be. And just so you can answer questions in school it's important.*
>
> Int.: Would anybody else like an engineer or a person in computers, or a minister or a fisherman need to know about history?
>
> Billy: *Well, the reason I think I'm glad I know it is because it gives you a better idea about things.* Like when we learned about the black people being discriminated against, it gives you an idea in some of the books that we brought in and read about what they went through and stuff. *It kind of makes you stop and think before you go off teasing other people just because they are black ... it's good for us to know those terms [colonization or discrimination] because we wouldn't know what our teachers were talking about if we didn't. We also would not know what other people were talking about.* (5/28/91)

In this excerpt, it is evident that Billy's notion of "knowing" includes remembering or recalling facts and details. However, he also began to understand the role

interpretation of events plays in history, and the role bias might play in written accounts:

> Billy: They just tell things like, they don't say, they don't give many opinions at all, they just give you the facts. But if those facts were told by someone else's perspective they would be a little more interesting. Like on the Mexican War they could have asked someone Spanish or Mexican instead of just the Americans. Some bias in some things like the book I checked out in the library, Santanna was made out to be a scoundrel because he burned up the port or whatever and killed everybody. But the Mexicans would hold him as a hero. You get one opinion from that. That he's not good and you don't really have to decide for yourself because you don't know.
>
> Int.: Now why do you think it's important to have other opinions? Wouldn't that be very confusing?
>
> Billy: You could hear some of the things he did and decide in your mind. He was a good general for his side so he might be a good general.

One important area of change for Billy seems to be in his understanding of what it means to know in the disciplines. Instead of "receiving" knowledge that is constructed by authorities in the discipline, he was learning that he and others play an important part in constructing history. In this way, he fits Belenky et al.'s (1986) description of "separate knowers [who] move toward a collegial relationship with the authorities. Armed with new powers of reason, separate knowers can criticize the reasoning of authorities...[authority] rests on reason rather than power and status" (p. 107). Billy even began to challenge his social studies teachers' authority, as shown in his response to a question on a pretest before a unit on the Civil War (2/7/91):

> Question: Do you think there is a need for Civil Rights today? Why, or why not?
>
> Billy's response: NO! I think its kind of weird when people are so anti-sexist. (Hint, Hint)
>
> Question: Did the Civil Rights movement end? Why or why not?
>
> Billy's response: In some ways. Some women still emphisise a little too much, I think. Hint, Hint.

Billy seems to have shifted the locus of authority from being exclusively external to including internal authority as well. Belenky et al (1988) discussed this as a characteristic of "subjective knowledge," where, "along with the discovery of personal authority arises a sense of voice--in its earliest forms, a 'still small voice' to which a woman begins to attend rather than the long-familiar external voices that have directed her" (p. 68). Not only was he learning that he has a say in what counts as knowledge, but he was beginning to voice his concerns to those in positions of authority, his teachers.

Billy becomes an author.[8] Billy began the school year participating in writing class as what we called a "school-smart kid" who could fulfill writing assignments quickly and easily. It was common to see Billy follow directions for writing tasks efficiently and then spend the rest of his time reading the latest book he had checked out from the library. He did no less than what was expected, but no more either. For example, for his first writing assignment, "All About Me," he worked on developing a focus in his writing, and changed the lead in his first draft ("My name is Billy. My hobbies are ...) to a more focused and interesting idea to pursue ("My family does a lot of things together. At dinner ...). He added descriptive details and personal information when asked but worked alone unless he was assigned to work with a partner for a particular task, and was often seen reading his book during writing time instead of further revising his drafts. For Billy, writing seemed to include doing what the teacher requested, and using whatever techniques were suggested. He admitted that he still did not feel particularly interested in writing: "Writing isn't my favorite subject anyway. I don't like it that much" (Journal entry, 10/90).

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[8] Also see ESC Series No. 58, Rosaen and Lindquist (1992), *Literacy Curriculum-in-the-Making: A Case Study of Billy's Learning*, which provides additional details about Billy's transformations as a writer.

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By November, he was beginning to reflect on the role time, effort, and attention to use of good writing techniques can play in improving his writing and in his level of enjoyment:

> I think I am a much better and much more descriptive writer than I used to be. I remember thinking "what a long time were spending on this assignment"! "I've never spent this long on one project. " I never liked writing very much But I like it alot more now.
>
> I think it [description] helps your writing alot. It makes it sound much more interesting and makes you want to continue reading ... exaggeration makes it much more interesting to read and write.

He also was beginning to show an awareness of audience for his writing with his new concern for making his writing "interesting," a term he used often when talking about good writing. On his mid-term Progress Report reflections, he expressed again his deepening understanding of writing, and the importance of his own role in the process:

> To become a good writer you have to practice, and work at it, you have to be patient, willing to start over, and over again.
>
> The most important thing I learned is that "when you write a piece it is not automaticly done. It still can be worked on and made better no matter how good you think it is." (1/30/91)

In addition to this new awareness, we began to see a different level of commitment to his own learning with a new goal he had set for himself with some encouragement from Rosaen that he would get the support he needed to try a new form of writing, an adventure story:

> "My goal is to write a fiction story that is good." (Mid-term progress report, 1/30)
>
> Goal--to write a good fiction adventure story, with people my age. (Second-term writing workshop goals:- 2/7/91)

Billy also began to participate more fully in our writing community. He changed from only working with others when assigned to choosing to collaborate with Stan when he wrote his adventure story. His commitment to his own goals persisted even when Stan lost interest in the story: "He quit and started talking to

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people around him, and I was the only one working on it." (Writing conference, 3/20/91). He saw collaboration as a way "to get ideas and to help each other make the story more interesting" (5/29/91).

Another change in his participation was Billy's more frequent choice to participate in small-group and whole-class opportunities to share. At first, he was content with listening to others, but by February, he shared a paragraph he had written, and by March was eager to read his entire adventure story to a small group.

By April, when asked to reflect in his journal about where authors get their ideas for writing, Billy showed that he felt a close connection to authors as *people* who write:

Authors are people too.

> "They have family life (if their married) and (just the same as all people) like to have fun. Like me, I'm an author. That doesn't mean I don't like to have fun. Sure, I take trips swim, fish, and other fun stuff." In their activities they can get Ideas. Authers are people too. (4/22/91)

He also came to value the freedom and responsibility he had as a writer in our learning community:

> You got to do what you wanted. Write what you wanted. Have as long as you wanted.... All the years prior to this year we just talked, this is how you write. You should make it description. But this year we got to use that instead of just talk about it. (5/29/91)

Evidence of a sustained commitment to this idea came when Billy joined Brenda in agreeing that he is an author, even when some of his peers were either not sure, or did not consider themselves to be authors:

> Because authors are people who write stories or books. And that's what we're doing, we're writing stories and poetry and short books and stuff.... We can publish them if we want to... So I consider at least me an author. (5/29/91)

Transformations in "ways of knowing" and "ways of being" in the learning community. Billy's conceptions of what it means to learn seemed to change from viewing knowledge as received (to be remembered and recalled) to seeing the active role he and others play in knowledge construction. He also changed his views of

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writing from seeing it as something one does according to the way a teacher assigns it to something that he can improve through time, patience, effort, and use of specific writing techniques. He participated more fully in the learning community in all three subject matter contexts--showing more willingness to collaborate in knowledge construction and more willingness to share ideas and to help others in their learning. He was making important connections in two areas: within writers' workshop, and about himself as a learner.

Billy's Understanding and Use of Empathy: Separate or Connected Knowing?

Billy's changing views of knowledge construction and his increased and more committed participation in the learning community are examples of transformations in Billy that were important to his learning. Yet we still had the nagging question to pursue as to why Billy chose to say the the issue he defined as being "against sexism" raised in the poem "Girls Can, Too!" was "not his problem," instead of seeing it as an important issue with which he could empathize. When we tried to trace Billy's understanding of the concept of empathy across writing and social studies we saw some apparent discrepancies that we sought to understand.

Examples of "connected knowing." In social studies, when Billy was exposed to examples of discrimination, he seemed to express empathy quite strongly. For example, after seeing the videotape "A Class Divided" that recounted a teacher's experiment with favoring blue-eyed over brown-eyed students to help them understand what it feels like to be discriminated against, Billy wrote the following journal entry (1/8/91):

> I got a very big feeling of respect for Mrs. Jane Elliott. I thought, How great it is that someone finialy found a good way to teach how wrong discrimination is. I was a little bit awed, and just a little surprised. I thought it was neat, and amazing that the class could divide against itself quickly. I would like (I think) to go through that. But after seeing the moving about it I would probably just sit back in my chair and laugh if Mrs. Hoekwater did it with us. After seeing the movie I doubt it would have much effect if it were tried on us. But if we hadn't

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> seen the movie I think it would have a lot of effect. I don't think you need to have something bad happen to do an experiment like that.
>
> I know that I have discriminated against people before. like when I'm with a friend and a girl asks to play I would say "NO!" but after this moving I think I would say "Yes!" And I would discriminate against people or kids younger than me I would say "no you can't play with us your to little, kid. But I don't think I would after seeing this movie. I wouldn't do that.
>
> The movie had alot of effect on me!

Not only did he explain the level of impact the video had on him, he elaborated on how his *actions* would change in the future. After studying about the treatment enslaved people endured, Billy wrote a passionate journal entry about his feelings (2/26/91):

> They were so discriminated. I can't believe how cruel the white people were to the black people. I wonder why the white people thought they were better than the "the blacks." I can't see why one human being thought they were so much better than others of a diffrent colored skin, so much better that they could kidnapp, kill, whip, torture, and have them work from "can see to can't see." They treat them like they don't have feelings that they just exist like they were made to work their butt off for someone else. So someone else could make money, or be lazy and not do any work. My heart would not alow me to whip people, and make them sit or lie still for hours, days, weeks, months. So cruel.

This entry is evidence of a real emotional connection that approaches Belenky et al.'s (1986) description of "connected knowing" where people learn through empathy, "in the lens of another person" (p. 115) and "authority ... rests not on power or status but on commonality of experience" (p. 118). Billy seemed to understand not only the concept of empathy rationally but also used the concept to get closer to understanding the feelings, thoughts and experiences of others. This is similar to his shift in his approach to learning science, when he began to relate to his classmates differently--to listen to them for insights and build on their ideas--and operated as a more empathic knower than he had before.

Examples of "separate knowing." During the Author's Design unit in writers' workshop, we had explored Native-American poetry and discussed the concept of empathy. We were attempting to build on what we knew students were learning in

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social studies to help them understand how empathy works in relationship to an authors' intended purpose for writing and the audience's response. On one occasion, we asked the students to select from a set of poems one that would best communicate the Native American's experience of losing the buffalo. Billy's participation with his group seemed to show qualities of being a "separate knower" where he intellectually *understood* the concept of empathy, but did not *experience* empathy. Billy's words are italicized to show his emphasis on empathy as thinking:

> When asked by Rosaen what audience reaction the writer of "The Revenge of Rain in the Face" may have intended, Billy immediately responded, "They wanted us to feel empathetic--is that how you say it? To put yourself in Indians' moccasins and walk a mile.... *Try to think like Indians think.*" When Rosaen asked if the author got that reaction out of him, Billy responded in the negative, while some of his peers said yes, they did have that reaction. Yet when Rosaen suggested that perhaps the author was not successful in getting his intended audience reaction, Billy insisted that the poem was successful: "I think it was successful. *It made you think how the Indians thought*, like the white man came and took over." When asked what that way of thinking was, Billy replied, "*They hated it and they wanted revenge....* [They felt] mad, hateful, disgust." (Audiotape, 3/5/91)

In this instance, Billy focused on understanding the Native-Americans' thinking, even labeling words like "hate" and "revenge" as thinking. This could be an example of "separate knowing" where "separate knowers avoid it [projection] by suppressing the self, taking as impersonal a stance as possible toward the object. Separate knowers try to "weed out the self" (Elbow, 1973, p. 171) so that "the flowers of pure reason may flourish" (Belenky et al., 1986, p. 109). Billy knew intellectually what the author wanted him to empathize with, but weeded himself and his personal feelings out of the picture.

When he was interviewed at the end of the year about ideas studied in social studies, Billy showed a similar kind of distancing--understanding the point of many concepts, but exempting himself from action or personal involvement, as shown in the italicized words:

Billy: If people don't discriminate against Native Americans and blacks they could get the same rights as white men and women. And then they would appear more in history maybe.

I.: Once they get more rights they'll appear more in history, is that what you're saying?

Billy: Yes.

I.: How can we help them get more rights and how can they get more rights?

Billy: By people learning about what happened and the young ones that grow up to be the elder generation, like the adults, they, since they have learned about that, they could change that. People my age would grow up to be the government because the people that are adults now will die and we'll be the adult age. And we will learn about his and maybe change it or something. *I don't know.*

I.: So you think that learning about this is very important if you want to change it. This is like the big first step. You learn about it and then in the future if you're part of the government you can change it. Is that what you're saying?

Billy: *Kinda.*

I.: What if you're not president or you're not in the government? Do you think there's anything you can do to change things?

Billy: *I guess* you could write letters to the government.

I.: Would that be something important for you to do in your life? To try and change things for people who don't have the same rights as you do?

Billy: *I don't know.*

I.: Okay. Do you ever talk about the ideas of equality, justice, racism, sexism, exploitation, discrimination, outside of social studies?

Billy: *Not really....* I just don't talk about those things I guess.

I.: Is it anything that you have learned in social studies that makes a difference in your own life outside of school?

Billy: *I don't think so. I don't know.*

I.: Do you treat anyone differently because of what you've learned in social studies?

Billy: *No. I don't run into any blacks, but when I do, I guess maybe I do, I'm not really sure.*

I.: And what's different?

Billy: *I include other I guess, I don't know.*

I.: What would you do in the future if the textbook you're given presents only one perspective of history and why would you do that?

Billy: *Probably nothing....* I could find the address of the company in the book... But then I probably wouldn't ... *I guess I would be satisfied to keep it this way* because you can find things out about the other perspective by checking things out at the library or the teachers will bring it in. (5/28/91)

Billy's responses in this excerpt are dramatically different from his earlier journal entries about his response to the videotape and to the way enslaved people were treated. Although he understood intellectually the issues of discrimination and empathy, and during brief moments actually did empathize with victims of discrimination, he did not seem to feel particularly moved to act on his understandings. Or perhaps it was easier for him to express emotions in private writing, such as in a journal and more difficult when he was with his peers or when being interviewed by a teacher. Still another possible explanation is that Billy's attitude reflects a privileged white male perspective (McIntosh, 1988). Perhaps he took for granted his position in society (white, male, middle class, and privileged) and assumed that he was not vulnerable to such treatment, and such issues would not actually touch his life.

Yet we still maintain that Billy experienced some important transformations. He developed intellectual understanding of some key concepts that are an important part of being an active and literate person. Additionally, he acquired some *language* with which to explore ideas and to interpret the world around him. For example, he did interpret Lee Bennett Hopkins' message in the poem "Girls Can, Too!" as one of antisexism, even though this message did not seem to be as personally significant to him. Language plays a central (but not sufficient) role in developing reflective thought (Belenky et al., 1986), and Billy acquired language that he can use in ways he did not have available before. Although he did not weave together "he strands of rational and emotive thought" and integrate objective and subjective knowing (p. 134), he experienced both separate and connected ways of knowing. By the end of

the year empathy was a rational concept for him (separate knowing), although he did experience personal connections at times. He could use, understand, and talk about the concept of empathy, but it was not a central feature of how he interpreted the world around him. We think these examples illustrate the beginnings of Billy's becoming a connected and empathic knower in science, social studies, and writing, and trust that he will continue to grow and change in significant ways beyond his fifth-grade year. Instead of seeing this as a case of either separate or connected knowing, or arguing that he either did or did not change, this is a case of Billy's unique transformation, which we were able to understand by taking a closer look at how he individually interpreted ideas and constructed his own integration.

Learning From Students

These cases illustrate that the nature of the transformations Brenda and Billy experienced were quite different, even though they participated in the same learning community. Bringing different starting points, different personal characteristics, different views of knowledge and "ways of knowing," they made sense of the learning experiences in unique ways. Yet we identified certain aspects of the learning community in science, social studies, and writing that supported each one in their development.

In each learning community there was an emphasis on several "ways of being" that supported students' transformations. Public sharing and revision of ideas were key characteristics. This included supporting students in making their ideas explicit (through talk and writing), examining thinking through asking questions, and learning to use evidence and shared expertise to construct new knowledge. Students learned to collaborate, not just in getting work done but in thinking together, and came to value the diversity of backgrounds, ideas and talents their classmates had to offer. They learned to value and respect each others' ideas and to trust each other that they could take risks in trying out their ideas. Inquiry

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and asking questions, not just giving right answers, helped students to engage in meaningful and authentic problems. They became involved in setting their own goals for learning, which required ownership and commitment to actual learning, not just completing assignments. Brenda and Billy each learned important concepts and skills in the different subject matters, but also learned to approach future learning differently than they had before. Without a community in which these kinds of behaviors were not only encouraged, but were actually happening, Brenda and Billy would not have had the opportunities to change and grow in these directions.

For both Brenda and Billy, becoming aware of and learning new language to express and examine their ideas seemed to be key factors in the way they participated in the learning community and the meanings they constructed through their participation. While Brenda seemed to become more personally connected to her learning in ways that caused her to want to act on her new knowledge and become more visible in the learning community, they both developed language that helped them raise and discuss issues, which is an integral part of learning. The emphasis on personal sense making and respect for each person's ideas enabled Brenda and Billy to develop their own interests, attitudes and values in relation to the subject matter being taught, rather than feeling that there was a "party line" to which they must subscribe.

We have learned a great deal from Brenda and Billy. They have affirmed for us our belief that teachers should pay attention to students' thinking. They helped us see the value in providing opportunities for students to examine and share ideas about their learning, to create ways for them to set some of their own learning goals and pursue their own interests so their learning can become personally meaningful. They have reminded us of the power of collaboration and social interaction in bringing about significant understandings within and across subject matter. And

they have helped us see integrated teaching and learning in richer ways. These understandings help us as teachers know more about ways to to 'support their continued and unique growth. While teachers can purposefully plan their instruction so that students use concepts and skills learned in one subject matter context in other contexts (in and out of school), opening up the learning community' to allow for personal choices and sense making within specific subject matter areas can enable students to construct their own integration and act on their new learnings in ways that complement their current knowledge, interests and values.

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